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मानक

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IS 11852-6 (2001): Automotive Vehicles - brakes and braking systems, Part 6: Vacuum braking system - Special requirements [TED 4: Automotive Braking Systems]



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Bhartrhari—Nitiśatakam

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भारतीय मानक
स्वचल वाहन — ब्रेक और ब्रेकिंग प्रणाली
भाग 6 निर्वात ब्रेकिंग तंत्र — विशेष अपेक्षाएं
(पहला पुनरीक्षण)

Indian Standard
AUTOMOTIVE VEHICLES — BRAKES AND
BRAKING SYSTEMS
PART 6 VACUUM BRAKING SYSTEMS — SPECIAL REQUIREMENTS
(*First Revision*)

ICS 43.040.40

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BUREAU OF INDIAN STANDARDS
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NEW DELHI 110002

FOREWORD

This Indian Standard (Part 6) (First Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Automotive Braking Systems Sectional Committee had been approved by the Transport Engineering Division Council.

This Indian Standard on brakes and braking systems which was earlier issued in eight parts, has now been revised and issued in nine parts which are as under:

- Part 1 Terminology
- Part 2 General functions and features
- Part 3 Performance requirements and evaluation
- Part 4 Compressed air and air assisted brakes — Special requirements
- Part 5 Compressed air and air assisted brakes — Pressure test connections
- Part 7 Inertia dynamometer test method for brake linings
- Part 8 Test procedures
- Part 9 Requirements for vehicles equipped with Anti-lock braking devices

IS 11852 (Part 7) : 1995 Automotive vehicles — Recommendations for brakes and braking systems: Part 7 model test report has been withdrawn in this revision and has been replaced with a part covering 'Inertia dynamometer test methods for brake linings'. Part 9 covering the requirements for vehicles equipped with anti-lock braking devices has been added.

This Indian Standard has been prepared to help the vehicle manufacturers in designing suitable braking system for various types of vehicles and also in evaluating their performance.

This standard is mainly based on EEC directive 71/320/EEC relating to the braking devices of certain categories of motor vehicles and of their trailers, as amended by EEC Directives 74/132/EEC, 75/524/EEC, 79/489/EEC, 85/647/EEC, 88/194/EEC and 91/422/EEC.

The composition of the committee responsible for formulating this standard is given in Annex A.

Indian Standard

AUTOMOTIVE VEHICLES — BRAKES AND BRAKING SYSTEMS

PART 6 VACUUM BRAKING SYSTEMS — SPECIAL REQUIREMENTS

(*First Revision*)

1 SCOPE

This standard (Part 6) covers special requirements applicable to vacuum braking systems for road vehicles as defined in IS 11852 (Part 2). The requirements for capacity of storage devices and capacity of energy sources are also covered.

2 REFERENCE

The following standard contains provisions which through reference in this text, constitutes provisions of this standard. At the time of publication, the edition indicated was valid. All standards are subject to revisions, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent edition of the standard indicated below:

<i>IS No.</i>	<i>Title</i>
11852 (Part 2) : 2001	Automotive vehicles — Brakes and braking systems: Part 2 General functions and features (<i>first revision</i>)

3 CAPACITY OF STORAGE DEVICES

3.1 General

3.1.1 Vehicles, on which operation of the braking system requires the use of a vacuum, shall be equipped with energy storage devices of capacity meeting the requirements of 3.2 and 3.3 below.

3.1.2 However, the energy storage devices shall not be required to be of a prescribed capacity if the braking system is such that in the absence of any energy reserve it is possible for the system to achieve a braking performance at least equal to that prescribed for the secondary braking system.

3.1.3 In verifying compliance with the requirements of 3.2 and 3.3, the brakes shall be adjusted as closely as possible.

3.2 M and N Vehicles (Motor Vehicles)

3.2.1 The energy storage devices of M and N category of vehicles as defined in IS 11852(Part 2) shall be such that it is still possible to achieve the performance prescribed for the secondary brakes as under.

3.2.1.1 After eight full-stroke actuations of the service brake control where the energy source is a vacuum pump.

3.2.1.2 After four full-stroke actuations of the service brake where the energy source is the engine.

3.2.2 Testing shall be performed in conformity with the following requirements:

- a) The initial energy level in the energy storage device or devices shall be that specified by the manufacturer. It shall be such as to enable prescribed service braking performance to be achieved and shall correspond to a vacuum not exceeding 90 percent of the maximum vacuum furnished by the energy source.
- b) The storage device or devices shall be disconnected from the energy source. During the test the auxiliary service storage device or devices shall be isolated.
- c) On vehicles to which the coupling of a trailer or semi-trailer is authorized, the feed line shall be stopped and an energy storage device of 0.5 litre capacity shall be connected to the control line. After the test referred to in 3.2.1, the vacuum level provided at the control line shall not have fallen below a level equivalent to one-half of the figure obtained at the first brake application.

3.3 T Category of Vehicles (Trailers Including Semi-trailers)

3.3.1 The energy storage devices with which trailers are equipped shall be such that the vacuum level provided at the user points shall not have fallen below a level equivalent to one-half of the value obtained at the first brake application after a test comprising of the four full-stroke actuation of the trailer's service braking system.

3.3.2 Testing shall be performed in conformity with the following requirements:

- a) The initial energy level in the energy storage device or devices shall be that specified by the manufacturer. It shall be such as to enable the prescribed service braking

performance to be achieved.

- b) The storage device or devices shall be disconnected from the energy source. During the test the auxiliary service storage device or devices shall be isolated.

4 CAPACITY OF ENERGY SOURCES

4.1 General

4.1.1 Starting from the ambient atmospheric pressure, the energy source shall be capable of achieving in the energy storage device or devices, in three minutes, the initial level specified in 3.2.2(a). In the case of a motor vehicle to which the coupling of a trailer is authorized the time taken to achieve that level in the conditions specified in 4.2 below shall not exceed six minutes.

4.2 Conditions of Measurement

4.2.1 The speed in revolutions per minute (rpm) of the vacuum source shall be as given below:

- a) Where the vacuum source is the vehicle en-

gine itself the engine speed obtained with the vehicle being stationary, the gear in neutral and the engine idling;

- b) Where the vacuum source is a pump, the engine speed obtained with the engine running at 65 percent of the revolutions per minute corresponding to its maximum power output; and
- c) Where the vacuum source is a pump and engine is equipped with a governor, the speed obtained with the engine running at 65 percent of the maximum speed allowed by the governor.

4.2.2 Where it is intended to couple to the motor vehicle a trailer whose service braking system is vacuum operated, the trailer shall be represented by an energy storage device having a capacity 'V' in litres determined by the formula:

$$V = 15 R$$

where R is the maximum permissible mass, in tonne, on the axles of the trailer.

ANNEX A

(Foreword)

COMMITTEE COMPOSITION

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